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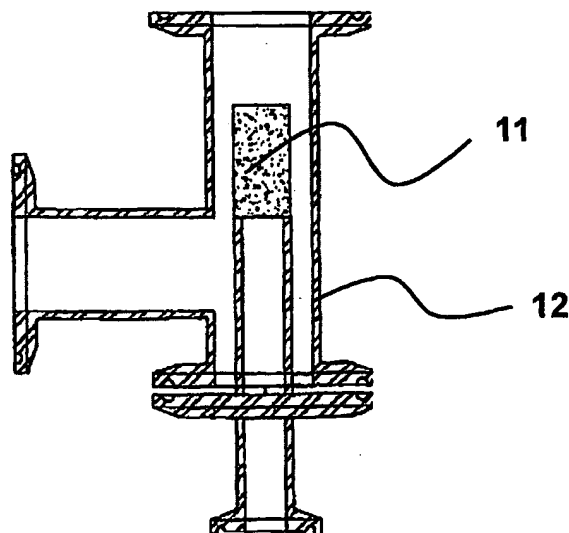
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(57) Abstract: Apparatus and methods are described for pharmaceutical grade manufacture extrachromoso-  
mal nucleic acids from cell lysates using flotation to  
separate and eliminate undesired insoluble cellular de-  
bris including chromosomal DNA from the lysates. A  
gas is introduced to controllably generate bubbles that  
reduce the density of the cell debris and create a buoy-  
ant flocculent phase that can be readily separated from,  
and thus provide, a substantially clarified fluid lysate  
phase that is enriched in extrachromosomal DNA but  
substantially depleted of cellular proteins and chromo-  
somal DNA.